

REMARKS

In response to the Office Action dated April 18, 2006, the applicants respectfully request entry of this amendment. By virtue of this amendment claims 34-49 are pending and no claims have been amended. Consideration and allowance of all of the claims in view of the above amendments and remarks are respectfully requested.

The applicants wish to thank the Examiner for withdrawing the previous restriction requirement.

The Examiner rejected claims 34-39 on the ground of nonstatutory obviousness-type double patenting over claim 16 of U.S. Patent No. 6,659,980. The Examiner also rejected claims 34-49 on the ground of nonstatutory obviousness-type double patenting over claims 1, 7, 18, 21-27, and 31 of U.S. Patent No. 6,485,465. Terminal disclaimers are being filed concurrently with this amendment to overcome these rejections. Therefore, it is respectfully submitted that the double patenting rejections be withdrawn.

In accordance with the Examiner's suggestion, the title of the invention in the specification has been amended. The new title reads as follows: "Systems for infusion pump fluid pressure and force detection."

Claims 34, 41-42, and 44-45 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,423,035 to Das et al. This rejection is respectfully traversed.

Embodiments of the present invention are directed towards occlusion detection systems for detecting occlusions in an infusion pump using sensors placed at or near the front end of the drive train. As recited in independent claim 34, the occlusion detection system includes "a housing; a motor contained within the housing; a drive train having a front end and a rear end, the front end being operatively coupled to the reservoir, and the drive train including at least one drive train component that reacts to a stimulus from the motor to force the fluid from the reservoir into the user; a sensor positioned on the at least one drive train component at or near the

front end of the drive train to measure tension and compression proportional to pressure applied to the at least one drive train component . . .”

The Das et al. reference does not disclose, teach or suggest an occlusion detection system for detecting occlusions in an infusion pump using “a sensor positioned on the at least one drive train component at or near the front end of the drive train.” The Examiner explains in his rejection on page 5, lines 4-6, that the Das et al. reference includes “a sensor 16, a force sensor, *seen to be positioned on the drive train near the front end of the drive train*” (emphasis added). However, the force sensor 16 in the Das et al. reference is not positioned on the drive train at or near the front end of the drive train; rather, the sensor 16 is positioned at or near the rear end of the drive train as shown in Figure 1.

Independent claim 34 clearly recites that the drive train includes both a front end and rear end, and further, that the front end of the drive train is operatively coupled to the reservoir. The claim further recites that a sensor is positioned “at or near the front end of the drive train.” The Examiner stated in his rejection on the last sentence on page 4 that the drive train of the Das et al. reference is seen as elements 20, 21, 18, and 28 having a front end and a rear end. In order to compare the Das et al. reference with independent claim 34, the Examiner must first determine which elements of the Das et al. reference show the front end of the drive train and which elements show the rear end of the drive train. The claimed subject matter recites that the front end of the drive train is operatively coupled to the reservoir. Therefore, in the Das et al. reference, the front end of the drive train must refer to elements 21 and 20 since those elements are coupled to the reservoir 24, thus making the remaining elements of the drive train—elements 18 and 28—the rear end of the drive train. Again, referring to Figure 1 of the Das et al. reference, the sensor 16 is seen to be positioned at or near the rear end of the drive train because it is shown to be near elements 18 and 28 which clearly make up the rear end of the drive train.

Accordingly, it is respectfully submitted that the rejection of claims 34, 41-42, and 44-45 under 35 U.S.C. § 102(e) should be withdrawn.

Claims 35-40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Das et al. (U.S. Patent No. 6,423,035) in view of Dixon (U.S. Patent No. 3,677,218). Claim 43 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Das et al. (U.S. Patent No. 6,423,035) in view of Tseo (U.S. Patent No. 4,747,828). These rejections are respectfully traversed.

Dependent claims 35-40 and 43 all depend from independent claim 34 which was patentably distinguished from the Das et al. reference as explained above. Accordingly, claims 35-40 and 43 are also distinguished over the Das et al. reference.

Therefore, it is respectfully submitted that the rejections of claims 35-40 and 43 under 35 U.S.C. § 103(a) should be withdrawn.

Claims 46-49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Das et al. (U.S. Patent No. 6,423,035) in view of Vovan (U.S. Patent No. 6,062,087). This rejection is respectfully traversed.

The Examiner argues that the Vovan reference discloses a sensor in direct contact with a stopper and that, “therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Das . . . in order to provide a more direct relation between the pressure observed and the pressure perceived by the sensor.” However, upon examination of both the Das et al. and Vovan references, there is no teaching, suggestion or motivation found in either reference describing a desire to have “a more direct relation” as recited by the Examiner. As stated in §2143.01 (I) of the MPEP, “[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art.” The Examiner has failed to show a teaching, suggestion or motivation found in the prior art references themselves or in the knowledge generally available to one of

ordinary skill in the art that having a sensor in direct contact with stopper would provide a more direct relation between the pressure observed and the pressure perceived by the sensor.

The Das et al. reference does not disclose, teach or suggest the placement of a sensor in direct contact with a stopper. Additionally, the Das et al. reference does not explain that having a sensor in direct contact with a stopper would “provide a more direct relation between the pressure observed and the pressure perceived by the sensor” (Office Action, Page 8). Accordingly, the Das et al. reference shows no teaching, suggestion or motivation to combine the references.

The Vovan reference discloses a heat and pressure sensor apparatus for use with injection molding techniques. The Examiner cites to the abstract and Figure 2 of the Vovan reference to show that it would have been “obvious to one of ordinary skill in the art” to modify the Das et al. reference “to utilize the strain gauge and cap in contact with the stopper in order to provide a more direct relation between the pressure observed and the pressure perceived by the sensor” (Office Action, Page 8). However, there is no teaching, motivation, or suggestion in the Vovan reference that describes the desirability of having the sensor in direct contact with the stopper, as opposed to having the sensor positioned anywhere else on the apparatus. In particular, the cited sections of the Vovan reference—abstract and Figure 2—do not recite any teaching, motivation, or suggestion that having the sensor in contact with the stopper provides a more direct relation between the pressure observed and the pressure perceived by the sensor.

The MPEP explains further that “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious *unless the prior art also suggests the desirability of the combination.* In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis added). As explained above, since neither of the prior art references suggest the desirability of the combination, claims 46-49 cannot be classified as obvious.

Therefore, it is respectfully submitted that the rejections of claims 46-49 under 35 U.S.C. § 103(a) should be withdrawn.

In view of the foregoing, it is respectfully submitted that the application and all of the claims are in condition for allowance. Examination and consideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is invited to call the undersigned attorney at (818) 576-5003 should the Examiner believe a telephone interview would advance the prosecution of the application.

Respectfully submitted,

Dated: July 18, 2006
Medtronic MiniMed, Inc.
18000 Devonshire Street
Northridge, CA 91325-1219
Telephone: (818) 576-5003
Facsimile: (818) 576-6202

By: /Ajit S. Narang/
Ajit S. Narang
Reg. No. 55,480